



California Energy Commission

Emerging Renewables Program Proposed Guidebook Changes

COMMITTEE WORKSHOP

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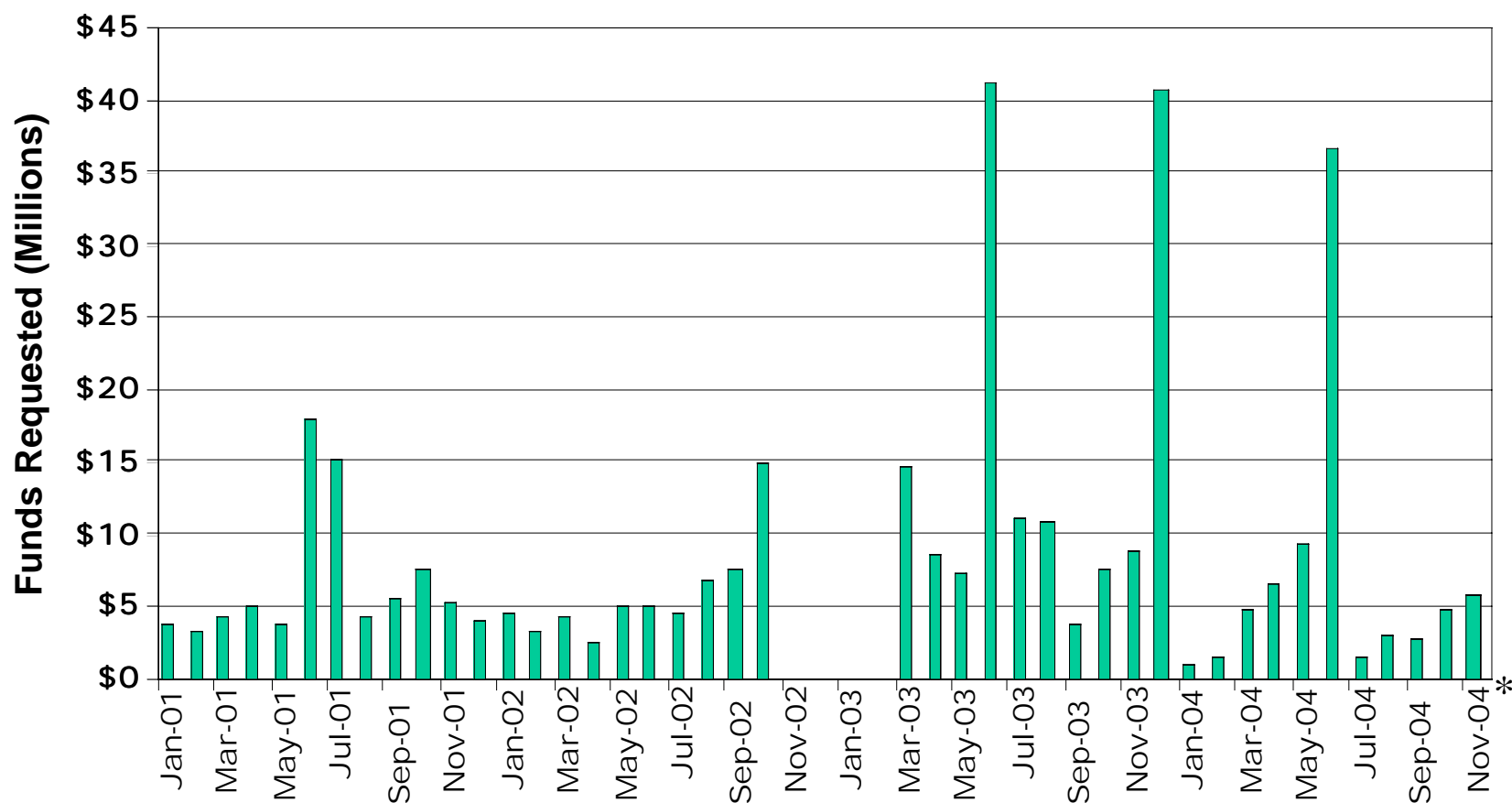
Overview

- Summary of Demand for Program Funds
- Pilot Performance-Based Incentives (PBI)
- Other Guidebook Changes
 - Application Process and Forms
 - Test Protocol for Eligible Inverters
 - Application Extensions
 - Audit and Inspections
 - Other Changes



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ERP Funding Requested by Month (Updated December 1, 2004)



Note: Not all November applications are accounted for.





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Systems Installed through the Emerging Renewables Program

<i>Year</i>	<i>Number</i>	<i>kW</i>	<i>Paid (millions)</i>
1998	41	181	\$0.5
1999	197	1,060	\$2.9
2000	235	802	\$2.2
2001	1,292	4,294	\$16.9
2002	2,331	8,499	\$36.4
2003	3,022	12,914	\$52.1
2004*	4,135	17,312	\$63.2
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Grand Total	11,252	45,069	\$174.2

* Updated November 30, 2004





Pilot PBI Program

- \$10 million available for photovoltaic installations
- Will run concurrent with other rebate programs
- Open to all customer classes
- Evaluation activities



Pilot PBI Program Objectives

- Extend ratepayer funds
- Determine appropriate incentive level
- Attract optimal PV systems and installations, encourage good maintenance
- Test program strategy for maximizing electricity production



Pilot PBI Incentive Level

- Single incentive level (35¢ / kWh for 3 years)
- Equivalent to rebates on net present value basis
 - Accounts for full tax benefits available to commercial customers
 - Requires less funds for same economic benefit
 - Results in more systems with same funds
- Residential customers would require higher total incentive than upfront rebate



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PBI – Analysis of Incentives Proposed 35¢ / kWh for 3 Years

Commercial Customer 100 kW_(PTC) PV System
\$2.80 Rebate = \$280,000

	Commercial Loan A	Commercial Loan B	Commercial Cash A	Commercial Cash B
PBI 3 yr	32 ¢/kWh	41 ¢/kWh	58 ¢/kWh	73 ¢/kWh
Total Payments 3 yr	\$180,000	\$200,000	\$240,000	\$370,000

Residential Customer 3 kW PV System
\$2.80 Rebate = \$8,400

	Residential Loan A	Residential Loan B	Residential Cash A	Residential Cash B
PBI 3 yr	71 ¢/kWh	54 ¢/kWh	87 ¢/kWh	67 ¢/kWh
Total Payments 3 yr	\$10,000	\$8,000	\$11,000	\$10,000

Note: Assumes typical energy production at 17% capacity factor (PTC); better performing systems would receive higher incentive payments.





PBI - Funding Limits

- \$400,000 funding limit per site
 - Assures minimum number of projects
- \$1,000,000 corporate parent limit
 - Spreads out funds among various participants



PBI – Funds Reserved

- Initial 12 month reservation period followed by 3 years of quarterly payments
- Maximum funds reserved based on 25% capacity factor (PV array PTC rating)
 - Intentionally high to ensure adequate funds are reserved

$$\text{Funding Reserved} = (\text{kW})_{\text{PTC}} \times (8760 \text{ hrs/year} \times .25 \text{ kWh/kW}) \times \$0.35/\text{kWh} \times 3 \text{ yrs}$$

- Typical PV system capacity factor is 17%
 - Very few systems exceed 20% capacity factor



PBI – System Performance Reporting & Payments

- Revenue-quality meter required
- Generation (kWh) data recorded monthly and reported quarterly
 - Web-based reporting
 - Electric utilities read and report system performance data
- Incentive payments made quarterly
- Payment period is 3 years
 - Short enough for pilot program, long enough for data collection



PBI – Program Evaluation

- Participant information and performance data will determine:
 - What customer classes participate (and why)
 - How system performance compares with systems receiving up-front rebates
 - Whether “higher-quality” systems are installed
 - Whether system maintenance is better
 - Are ratepayer funds extended by supporting more PV generation than with up-front rebates
 - What barriers remain



Other Guidebook Changes

- Test Protocol for Inverters
- Inverter Rating Methodology
- Time Extensions
- Revised Application and Payment Process
- Other Changes



Test Protocol for Eligible Inverters

- Requires inverters to be independently tested for efficiency, continuous power and tare losses
 - Efficiency to be evaluated at 30%, 50%, 75% and 100% load
 - Method relies on test protocol developed by Sandia, Endecon and others
 - Testing required prior to April 1, 2005 for inverters to remain on list of eligible equipment
 - Does not affect complete applications submitted prior to change
- Will improve consistency in ratings identified on list of eligible equipment



Inverter Ratings

- Inverter efficiency rating based on wider range of operation; weighted by following factors:

DC Input Power Level	Weighting Factor
30%	0.13
50%	0.33
75%	0.44
100%	0.10

- Methodology not likely to change rated efficiency significantly for most inverters

Note: Factors determined from 75% of high insolation and 25% of low insolation factors published in Performance Test Protocol for Evaluating Inverters Used in Grid-Connected Photovoltaic Systems



Time Extensions

- Time extensions will no longer be available for new applications subject to proposed changes
- Time extensions for existing applications will be simplified
 - Approved with simple request filed prior to original expiration date
- Extension requests require inordinate amount of time to evaluate
 - Nearly all requests are incomplete and require more information
 - Many requests simply do not meet minimum criteria



Reservation Application Form Revised

- Form modified to improve completeness of applications
 - Better identifies what detailed information is needed
 - Provides more guidance on required attachments depending on situations
 - Seller/contractor must confirm agreements in place
 - Agreements no longer required to be submitted with initial application
- Should reduce incomplete applications and resulting processing delays
- Historically 50% of applications incomplete
 - Delays application process for others



Permit Required with Application

- Assures reservations made for projects that are well developed
 - Nearly all systems installed within two months of system permit approval
- Requires nominal fee to be spent prior to reservation
 - Conceptually similar to PV industry recommendations to charge application fee
 - Reduces applications without firm commitments for proposed sale
- Reduces delays in reviewing applications
 - Less time spent on applications for systems that ultimately do not get completed
 - Reduces time spent clarifying vague applications or on modifications to approved reservations
 - Reduces spikes in demand prior to rebate change



Revised Payment Process

- Letter of authorization to interconnect system with utility grid required before rebate payments made
 - Payment request may be filed prior to receiving letter of authorization
 - Utilities have encountered a number of system installations operating without their knowledge or approval
- Original contracts must be submitted with payment request to confirm initial application; if not already provided



Other Changes

- Added details on steps Energy Commission will take when contract information is questionable
- Seller registration form modified
 - Payee data record required with annual seller registration form
- Modified rebate calculation methodology for when system size increases for existing reservation
 - Does not change current methodology if installation type or technology type changes



Next Steps

- Comments on proposed changes due Friday, December 3, 2004
- Renewables Committee will consider comments and revise guidebook, as appropriate
- Final draft planned for consideration at the Jan. 5, 2005 Business Meeting
 - Proposed changes to become effective when adopted



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Additional Information

energy.ca.gov/renewables/emerging_update

(800) 555-7794



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